USE OF AI TOOLS IN WRITTEN ASSIGNMENTS: ENGLISH STUDENTS' PERCEPTIONS

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ABSTRACT

The rapid growth of artificial intelligence (AI) tools has changed the way students write in higher education. This study examined UTAR English students' perceptions of using AI tools in their written assignments. It adopted a quantitative research design and collected data through questionnaire adapted from previous research. A total of 80 students from English Education (ED) and English Language (EL) programmes participated. The findings showed that students held positive perceptions towards AI tools. They found these tools useful, easy to use and effective for their writing tasks. Besides, they believed that AI tools improved writing quality, increased efficiency and supported grammar and vocabulary development. However, they also expressed concerns about inaccurate information, reduced critical thinking and academic dishonesty. The study answered both research questions and confirmed that AI tools bring both benefits and risks to writing performance. It also offered new insights by focusing on Malaysian English students, various AI tools and their writing performance, which past studies rarely explored. The implications highlight the need for AI literacy and clear institutional guidelines to ensure ethical and responsible use.

Keywords: *artificial intelligence (AI) tools, student perception, academic writing, writing performance, higher education*

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CHAPTER 1 INTRODUCTION

1.1 Background of the Study

Since artificial intelligence (AI) technologies have rapidly evolved, many AI tools have become popular in recent years. The emergence of AI tools like ChatGPT, DeepSeek, Grammarly and QuillBot attracted a lot of attention, especially in the education sector (Āboliņa et al., 2024; Ahmed et al., 2025; Guba et al., 2024). Furthermore, the technology-based companies such as Microsoft and Google also developed their own AI tools, Copilot and Gemini, respectively. These tools are increasingly integrated into higher education to support academic tasks such as writing, language learning and research (Sallam, 2023).

Among these tools, ChatGPT, an AI chatbot launched in November 2022, quickly gained attention globally due to its ability to adapt text based on feedback (Haleem et al., 2022). Another AI-powered chatbot, DeepSeek, was introduced in January 2025. It offers similar features as ChatGPT but focuses on more complex research-based tasks (Kotsis, 2025). DeepSeek was developed as an open-source Large Language Model (LLM) that employs advanced machine learning algorithms to process and solve problems (Goodwin, 2025; Kerner, 2025). DeepSeek also enables multimodal learning by combining natural language processing (NLP) with computer vision (Kotsis, 2025). Unlike AI chatbots, both Grammarly and Quillbot primarily serve as grammar checkers and paraphrasing tools (Hadiat et al., 2022; Latifah et al., 2024). These AI tools are reshaping how university students handle their academic tasks, particularly written assignments.

A 2024 survey revealed that 86% of university students across 16 countries use AI tools in their studies (Digital Education Council, 2024). Meanwhile, a study in Malaysia found that 45.8% of undergraduate healthcare students use ChatGPT for assignments (Pallivathukal et al., 2024). Most of the university students perceive AI tools positively in assisting their studies

(Khairuddin et al., 2024). However, there are rising concerns about academic integrity, critical thinking and over-reliance on AI tools (Aljuaid, 2024; Črček & Patekar, 2023; Morhan, 2023). Studies in Malaysian universities highlighted that although students claim they benefit from AI tools, some educators express concerns about accuracy and originality in written work (Halamy et al., 2024; Ismail, 2024; Selvanathan & Narayanan, 2024).

In the context of language education, AI tools like ChatGPT can potentially enhance students' writing performance because they generate ideas, provide feedback and correct grammatical errors (Zhai, 2022). However, research focusing on undergraduate English students, especially in Malaysia, remains limited. For example, most English as a Second Language (ESL) students in Selangor Islamic University (UIS) believe that AI tools can improve their writing skills, citing over-reliance on AI tools as drawback (Ismail, 2024).

Thus, this study aims to explore the perceptions of English students in Universiti Tunku Abdul Rahman (UTAR) regarding the use of AI tools in their written assignments. By understanding UTAR English students' experiences, it will provide insights for educators and contribute to the local context.

1.2 Statement of Problem

Nowadays, technology has become an important part of modern society, especially the AI technology. The sudden increase in the use of AI tools has made it a hot topic in recent years, even though using AI in educational activities is not a new phenomenon (Firat, 2023). According to Walter (2024), the integration of AI tools has significantly transformed traditional education by revolutionising pedagogical approaches in higher education. Furthermore, these AI tools such as ChatGPT, DeepSeek, Grammarly and QuillBot are widely used to improve written content and efficiency (Ismail, 2024; Sallam, 2023). In Malaysia, recent studies found

that most university students are using AI tools for academic tasks, particularly written assignments (Halamy et al., 2024; Ismail, 2024; Khairuddin et al., 2024; Pallivathukal et al., 2024).

While many studies explored students' perceptions towards AI tools in general educational contexts (Ngo, 2023), there has been little discussion about the perceptions of English students towards the use of AI tools in their written assignments. The existing studies highlight that although AI tools can increase efficiency, they often lead to reduced critical and analytical thinking skills, particularly when students become overly dependent on AI-generated content (Zhai et al., 2024). Also, a study highlights that AI tools enhance the productivity of university students since they generate ideas efficiently, but it comes along with challenges such as the tendency to rely on AI tools (Āboliņa et al., 2024).

According to Jamoom (2021), writing is an important skill for undergraduate students, especially those enrolled in English programmes. The reliance may hinder English students' ability to develop their writing skills which are crucial for their academic performance. Moreover, recent studies revealed that there is a need to issue guidelines to address academic integrity concerns related to AI (Črček & Patekar, 2023; Pallivathukal et al., 2024). Unlike some universities in Western countries, such as Stanford and the University of California, they have developed policies and guidelines to assist students in using AI tools ethically (Aljuaid, 2024). Hence, it urges further research to address such concerns in non-Western countries like Malaysia.

Besides, there is limited research focusing on English students' perceptions of AI tools in academic tasks, particularly in Malaysian universities. Previous studies have broadly explored student perceptions of AI tools in general educational settings (Firat, 2023; Ngo, 2023), but few studies explore how English students perceive and utilise AI tools in written

assignments. For instance, STEM students might prioritise AI tools' problem-solving capabilities (Ngo, 2023), whereas English students are likely to focus on their utility for brainstorming and grammar correction (Ismail, 2024).

Therefore, the researcher conducts this study to explore the perceptions of UTAR undergraduate students, specifically those enrolled in the English Education (ED) and English Language (EL) programmes, towards the use of AI tools in their written assignments. The findings will provide insights into whether students perceive AI tools positively or if they experience challenges mentioned in previous studies such as reduced critical thinking, dependency, etc.

1.3 Research Objectives

In this study, the researcher aims to explore the perceptions of UTAR English students regarding the use of AI tools in their written assignments. Thus, the study will examine the following research objectives:

1. To explore UTAR English students' perceptions towards the use of AI tools in their written assignments
2. To examine the impact of AI tools on UTAR English students' writing performance

1.4 Research Questions

The research questions will be:

1. What are the perceptions of UTAR English students towards the use of AI tools in their written assignments?
2. What are the impacts of AI tools on UTAR English students' writing performance?

1.5 Significance of the Study

The study is worth doing because it addresses a gap in the existing study by focusing on the use of AI tools in written assignments, specifically among English students in the UTAR context. While past studies have generally explored student perceptions of the use of AI tools in education (Āboliņa et al., 2024; Khairuddin et al., 2024), few focus on English students, whose programmes prioritise writing proficiency. By narrowing down its scope to English students, this study provides data that reflects English students' academic priorities, which may differ from students across various courses.

Furthermore, the study is significant as it provides valuable insights which may differ from Western contexts. Since this study will be conducted in UTAR, the educational environment may lead to different experiences with AI tools compared to other universities. As Zhai et al. (2024) stated, while AI tools improve students' efficiency, they may lead to reduced individual ability and excessive reliance on AI-generated content. Thus, by exploring UTAR English students' perceptions, the study will determine whether they face similar issues in completing their written assignments as past studies mentioned.

Additionally, the findings of the study could serve as guidance for educators and policymakers in UTAR and other Malaysian universities. Since AI tools become more integrated into education, universities must set clear guidelines to ensure students utilise AI responsibly and ethically (Aljuaid, 2024). Hence, the findings can help educators develop appropriate policies to incorporate AI tools into academic settings without compromising writing skills.

This study also contributes to localised research within the Malaysian educational contexts by providing insights that are directly applicable to universities in Malaysia. Many

studies on AI in higher education are conducted in Western countries, such as Črček and Patekar (2023) and Valova et al. (2024), where cultural and institutional factors may shape AI adoption differently. By focusing on UTAR English students, the study provides a more contextualised understanding of AI use in Malaysian higher education.

1.6 Definition of Key Terms

1.6.1 Artificial Intelligence (AI)

AI stands for artificial intelligence. John McCarthy, one of the pioneers in the field, defined AI as "the science and engineering of building intelligent machines" (Ertel, 2017). In the modern era, AI refers to the ability of a computer or robot to carry out tasks that typically require human intelligence (Copeland, 2025). For example, AI can perform tasks like humans by learning and adapting to new data automatically. In this study, it focuses on the use of AI tools such as ChatGPT, DeepSeek, Grammarly and QuillBot in educational contexts.

1.6.2 ChatGPT

ChatGPT stands for Chat Generative Pre-trained Transformer and was developed by OpenAI in 2022. It is a software that leverages NLP to process and generate responses to user inquiries (Deng & Lin, 2022). This language model is widely used in helping students with tasks such as writing, brainstorming and learning (Gregersen, 2025). The study will explore how English students perceive the use of AI tools like ChatGPT in their written assignments.

1.6.3 DeepSeek

DeepSeek is an AI model developed by DeepSeek Inc. and launched in 2025. It is also an AI-powered chatbot like ChatGPT, designed to support everyday tasks through advanced data analysis and text generation (Ng et al., 2025). Unlike ChatGPT, DeepSeek is notable for its combination of vision and language processing capabilities. It can process both web content and high-resolution images, further supporting students in their studies (Kotsis, 2025). In this study, DeepSeek is considered as one of the AI tools that students may use in their written assignments.

1.6.4 Other AI tools

Other AI tools like Grammarly and QuillBot are designed for writing purposes. According to Guba et al. (2024), Grammarly is an automatic writing evaluation (AWE) program that was founded in 2009. It is an AI tool that enhances writing by detecting errors in spelling, punctuation and sentence structure (Hadiat et al., 2022). On the other hand, QuillBot is an AI-powered paraphrasing tool that was developed in 2017. It is often used to avoid plagiarism by rephrasing text while retaining meaning (Latifah et al., 2024). Both tools are utilised by students to refine their writing quality, and this study will explore students' perceptions regarding the use of these tools in their written assignments.

1.6.5 Written Assignment

According to Derrington et al. (2021), written assignment is a form of assessment in universities that requires students to produce written content as part of their academic work. These written assignments usually include research papers, reports and essays to assess students' understanding and application of information (Bartlett & Derrington, 2021). In this

study, written assignments are the primary context for exploring the perceptions of UTAR English students on the use of AI tools.

1.7 Limitations of the Study

This study has several limitations that may affect the generalisability of its findings. First, the research is conducted with a small sample size, which only focuses on students enrolled in the ED and EL programmes in UTAR. Thus, the findings may not be fully generalisable to a broader population such as students from different courses or other universities.

Furthermore, this study is limited to self-reported data, which relies on participants' perceptions rather than objective assessments of AI's impact on their writing performance. While the study provides valuable insights, self-reported perceptions may be influenced by personal biases, experiences, etc. Participants may provide answers they believe are more favourable rather than their true opinions.

Lastly, this study lacks of in-depth insights because of its exclusive use of quantitative methods. Although quantitative data can reveal how students perceive AI tools, it cannot explain why they hold these views. The design of questionnaires may restrict students' responses as they cannot further elaborate on their thoughts.

Despite these limitations, the study still provides valuable insights into English students' perceptions regarding the use of AI tools in written assignments. Future research could adopt a mixed-methods research design to gain a deeper understanding of students' perceptions.

CHAPTER 2 LITERATURE REVIEW

2.1 Reviewed of Past Studies

2.1.1 Artificial Intelligence in Modern Era

Today, the integration of artificial intelligence (AI) into human society has become a global phenomenon. This integration has significantly transformed many sectors, including healthcare, finance, agriculture, education, etc. (Rashid & Kausik, 2024). Specifically, the ability of AI to learn and process large datasets enhances efficiency and improves decision-making processes (Copeland, 2025; Rashid & Kausik, 2024). Therefore, AI is widely used in different fields.

In the healthcare industry, AI is used for medical imaging, personalised treatment and patient diagnosis (Bhagat et al., 2024). The banking sector uses AI to detect fraud, predict stock market trends and improve customer experience (Abdulsalam & Tajudeen, 2024). Moreover, AI in the agriculture sector helps monitor crop health, manage irrigation and increase yields (Rashid & Kausik, 2024). As highlighted by Espina-Romero et al. (2023), AI is dominating the technology industry and increasingly impacting other sectors. Although AI is influencing almost every sector, its applications vary from one sector to another.

Among all sectors, AI is increasingly shaping the education sector (Espina-Romero et al., 2023). Crompton and Burke (2023) have discussed the use of AI in education (AIEd), including assessment, prediction, AI assistant, Intelligent Tutoring System (ITS) and managing student learning. These AI applications not only reduce teacher workload but also create personalised learning environments for students. To support this view, studies by Firat (2023) and Ngo (2023) highlighted that the use of AI tools in academic settings is mainly for personalised learning experiences. This is because AI can deliver personalised content and provide real-time feedback (Ngo, 2023).

Additionally, the use of AIEd is prevalent in language-related tasks, such as writing, reading and vocabulary acquisition (Crompton & Burke, 2023). Recent studies have proved that tools like ChatGPT, Grammarly and QuillBot help students in generating ideas, improving grammar and structuring their writing effectively (Aljuaid, 2024; Hadiat et al., 2022; Zhai et al., 2024). Likewise, AI's natural language processing (NLP) abilities make it very useful in language learning (Firat, 2023). Thus, language education has emerged as one of the most AI-integrated areas within the education sector. In this study, the researcher seeks to explore the students' perceptions of AI use in written tasks and examine the impact of AI tools.

2.1.2 AI in Language Education

In recent years, AI has revolutionised the field of language education. According to Firat (2023), AI has been increasingly used to support student learning due to its ability to adapt to different learning styles. Āboliņa et al. (2024) also mentioned that the emergence of AI is significantly transforming students' traditional learning approach. Students often use AI to handle academic tasks, such as obtaining information, generating ideas, summarising texts, checking grammar and so on (Āboliņa et al., 2024; Ngo, 2023).

Furthermore, Digital Education Council (2024) revealed that 86% of students worldwide use AI in their studies and 24% are using it daily. However, students from different disciplines may use AI in different ways. As a matter of fact, AI is widely used in science, technology, engineering and mathematics (STEM) fields (Espina-Romero et al., 2023). For instance, STEM students use AI to understand concepts, perform logical analysis and solve problems (Valeri et al., 2024). AI-powered tools like Wolfram Alpha can help solve complex mathematical problems, whereas Replit and GitHub Copilot can help with coding (Chew, 2023; Muñoz et al., 2024).

Despite AI's diverse applications, many studies show that students primarily use AI tools for written tasks regardless of the courses (Črček & Patekar, 2023; Halamy et al., 2024; Khairuddin et al., 2024; Syarifah & Fakhruddin, 2024). The common AI tools, such as ChatGPT, Grammarly and Microsoft Copilot, are used by students to improve written content, check grammar and generate ideas (Digital Education Council, 2024). AI's remarkable ability to enhance writing performance makes it particularly beneficial for academic writing. Therefore, in language education, AI tools, especially AI chatbots like ChatGPT and DeepSeek, are greatly utilised by students.

Some researchers have emphasised that AI is reshaping the way students learn and write. For example, Ngo (2023) noted that AI chatbots like ChatGPT are useful writing tools which enable students to develop ideas, organise written content and receive instant feedback. Similarly, by correcting errors, paraphrasing and rephrasing content, Latifah et al. (2024) found that AI tools like QuillBot significantly improve writing quality and efficiency. Moreover, Aljuaid (2024) observed that AI tools support grammar correction, language enhancement and text generation. Nevertheless, these researchers raised concerns about the over-reliance on AI, as well as academic integrity and accuracy (Aljuaid, 2024; Latifah et al., 2024; Ngo, 2023).

This trend also extends to Malaysian higher education (MHE), where the AI adoption reflects global patterns. Studies have shown that Malaysian university students also utilise AI tools to support their academic tasks, such as grammar checking, content refinement and idea generation (Ismail, 2024; Pallivathukal et al., 2024). Thus, this study focuses on how Malaysian undergraduate students perceive the use of AI and whether they face similar concerns as found in past studies.

2.1.3 AI in Malaysian Higher Education

Over the past few years, AI has become increasingly popular in Malaysian universities, where students are integrating it into their academic routines (Razak et al., 2024). In fact, Malaysian university students use AI tools for academic purposes, such as research, written assignments and exam preparation (Pallivathukal et al., 2024). For example, a study by Ismail (2024) revealed that Malaysian undergraduates frequently utilise AI tools in aiding English writing tasks, with Google Translate (42%), followed by ChatGPT (32%) and Grammarly (10%). The growing popularity of AI in MHE reflects global trends that students rely on AI to enhance writing efficiency and learning engagement.

Meanwhile, Pallivathukal et al. (2024) also found that 45.8% of Malaysian healthcare students use ChatGPT for assignments. Their findings reflect that AI is considered useful in improving writing quality across various disciplines. Besides, a recent study showed that AI tools are generally perceived positively in academic settings, with 284 Malaysian undergraduates giving a mean rating of 3.99 for AI's role in boosting engagement (Khairuddin et al., 2024). On top of that, these studies emphasised that AI tools can assist the writing process, making them particularly attractive to students who are juggling multiple academic tasks.

Despite the widespread use of AI in MHE, concerns persist. Selvanathan and Narayanan (2024) noted that educators are increasingly worried about the impact of AI tools on academic integrity. These concerns include the potential for plagiarism, reduced originality and over-reliance on AI-generated content (Ismail, 2024; Pallivathukal et al., 2024; Selvanathan & Narayanan, 2024). To avoid hindering skill development, educators must be prepared in order to guide students in using AI tools (Ismail, 2024).

Although several studies have investigated AI use in Malaysian universities, gaps in the literature remain. First, there is limited focus on English students' experiences. Most existing studies explore students' perceptions of AI tools across disciplines (Ahmed et al., 2025; Črček & Patekar, 2023; Ngo, 2023), without paying attention to English or language majors, who may be more deeply engaged with writing-related AI applications. Furthermore, there is limited localised research in Malaysia. Many existing studies on AIEd are conducted in Western or Arabic contexts (Āboliņa et al., 2024; Aljuaid, 2024; Valova et al., 2024), where educational practices and technological access may differ significantly. So, localised research focusing on Malaysian universities, such as Universiti Tunku Abdul Rahman (UTAR), is essential to understand how Malaysian students engage with AI tools in academic writing. As a result, this study aims to fill these research gaps by focusing on English students in the Malaysian university context, exploring their perceptions and the impacts of AI tools in written assignments.

2.2 Theoretical Framework

The theoretical framework of this study is based on two key models which are the Technology Acceptance Model (TAM) and the IDEE framework.

2.2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was introduced by Fred D. Davis in 1989. This model is a theoretical model that explains how users come to accept and use a technology.

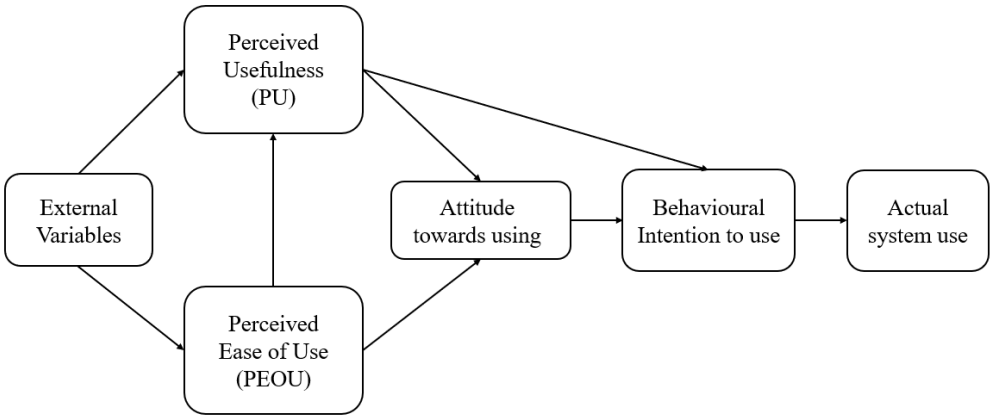

Figure 2.1 Technology Acceptance Model (TAM)

TAM suggests that when an individual is exposed to a new technology, there are two key factors that influence his or her decision to use that technology. The factors are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Davis (1989) defined PU as "the degree to which a person believes that using a particular system would enhance his or her job performance". On the other hand, he defined PEOU as "the degree to which a person believes that using a particular system would be free of effort". Both PU and PEOU play important roles in shaping users' attitudes towards using technology. 'Attitude towards using' refers to users' attitude towards using a particular technology, whether positive or negative. According to TAM, when users perceive technology as useful and easy to use, they are more likely to have a positive attitude towards it. 'Behavioural Intention to use' refers to users' willingness to use that technology in the future. Furthermore, Davis (1989) found that PU had a stronger direct effect on intention than attitude, suggesting that users may still intend to use a new technology even if their attitudes are neutral. 'Actual system use' refers to the real-world use of the technology. According to the model, users may intend to use a particular technology because they find it useful, easy to use and feel positive about it, so they are likely to use it in the real world.

Davis's (1989) TAM is one of the most influential models of technology acceptance. Many studies have applied it to analyse AI tools in academic settings. For example, Vo and Nguyen (2024) adopted TAM and extended it with Shoufan's (2023) framework to explore Vietnamese students' perceptions towards ChatGPT in developing their language. Their study revealed that students found ChatGPT is easy to use (mean value = 3.54) and perceived it positively (mean value = 3.76), but their perceptions of its usefulness are neutral (mean value = 3.30), and their intentions to continue using ChatGPT are also moderate (mean value = 3.43). In general, Vietnamese students feel positive about using ChatGPT in learning a foreign language. This supports TAM's claim that factors such as PU, PEOU and attitude will influence students' intention to use ChatGPT.

Besides, Aljuaid (2024) conducted a systematic review which included TAM along with other theories to explore the perceptions of teachers and students towards AI in academic writing. The researcher observed that students are integrating AI tools into academic writing because of their usefulness and ease of use. For example, AI tools are convenient and beneficial in improving grammar, vocabulary and writing efficiency. However, concerns such as over-reliance, loss of academic integrity and creativity can also influence students' attitudes towards AI tools. The findings highlight that while PU and PEOU contribute to AI adoption, they are affected by students' ethical considerations and educational context.

In this study, TAM will help to explore and understand the perceptions of UTAR English students regarding the use of AI tools in their written assignments. This is because TAM provides a framework to examine how students' perceptions of usefulness and ease of use may influence their intention to use AI tools.

2.2.2 IDEE

The IDEE framework was proposed by Jiahong Su and Weipeng Yang in 2023. This framework is designed specifically for the utilisation of AI technologies in the educational context.

Figure 2.2 IDEE framework

Su and Yang (2023) outlined four important steps to effectively use AI tools in education. The first step is 'Identify the Desired Outcomes'. In this step, the researchers emphasise the importance of defining educational goals before applying AI to ensure that the application aligns with the intended outcomes. The next step is 'Determine the Appropriate Level of Automation', in which users must decide whether AI should supplement or replace human roles based on their goals. The third step is 'Ensure Ethical Consideration'. This step encourages users to consider the ethical implications of AI to prevent over-reliance or misuse. The last step is 'Evaluate the Effectiveness', where users should evaluate the effectiveness of AI tools to achieve their educational goals.

Since Su and Yang's (2023) IDEE framework is a relatively new framework, there are few studies that apply it. For instance, Shanto et al. (2023) acknowledged that IDEE is a supportive theoretical foundation for integrating generative AI (GAI) tools into educational contexts. However, they pointed out a limitation of the framework, which lacks of clear measures to address academic misconduct caused by the misuse of AI. Therefore, they proposed their own framework, PAIGE, which is based on IDEE to fill the identified gaps.

In this study, only the fourth step, 'Evaluate the Effectiveness', will be adopted as it is closely aligned with TAM. Thus, a thorough exploration of student perceptions towards the use of AI tools in written assignments could be done by using both TAM and IDEE.

2.2.3 TAM and IDEE

This study applies TAM alongside IDEE to explore how UTAR English students perceive the use of AI tools in their written assignments and how these tools impact their writing.

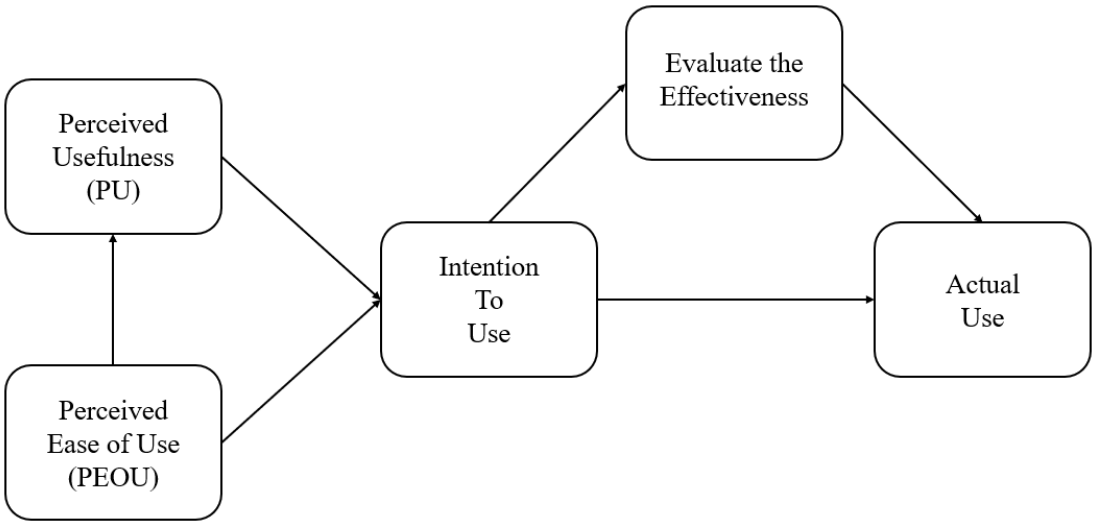

Figure 2.3 Technology Acceptance Model (TAM) and IDEE

In this integrated framework, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are proposed to influence students' intention to use AI tools. PU refers to the extent to which students believe that AI tools can improve the quality of their writing, while PEOU refers to how easy and convenient students think these tools are. Both PU and PEOU can shape students' intentions, reflecting their willingness or likelihood to use AI tools in academic tasks.

According to TAM, this intention typically leads to actual use. However, this study extends TAM by integrating the fourth step of IDEE, 'Evaluate the Effectiveness'. This step acts as a mediating or influencing factor between intention and actual use. It involves students

to reflect on whether the AI tools help them achieve their desired learning outcomes. By evaluating the effectiveness of the tools, students may either reinforce or reconsider their intentions, which in turn affects their actual usage behaviour. This means that actual use is shaped not only by intention but also by students' evaluation of the tools. In conclusion, the integrated framework enables researcher to explore the process of using AI tools for academic writing.

2.3 Critical Evaluation of Past Studies

In Chapter 2, the researcher reviewed a number of existing studies on the use of AI tools in the higher education context. These studies provided valuable insights into student perceptions, benefits and concerns regarding the use of AIEd. Nonetheless, they also exposed critical gaps that the current study seeks to address. Thus, the following section will evaluate and reveal both the strengths and limitations of these studies to support the relevance of this study.

Firat (2023) examined the implications of ChatGPT by analysing the perspectives of scholars and PhD students across four countries. One major strength of the study is its thematic analysis of ChatGPT's implications for universities, identifying nine themes such as ethical considerations and personalised learning. Also, the study uses a cross-cultural approach with participants from Turkey, Sweden, Canada and Australia, which enhances the generalisability of the findings. However, the study is limited by its small sample size of only 21 scholars and PhD students. Moreover, the study focuses on general educational contexts rather than specific contexts like academic writing or the use of AI tools beyond ChatGPT. This may limit its applicability to student experiences in everyday coursework.

Ngo (2023) provided insights into the pros and cons of AI use by investigating university students' perceptions of ChatGPT. The study adopts a mixed-methods research

design, which combines online surveys and semi-structured interviews, to fully explore student perceptions. Nonetheless, the findings may be limited because the study focuses on general educational contexts without exploring writing-related applications. In addition, the study overlooks other AI tools such as Grammarly and QuillBot, thereby limiting its applicability to broader contexts.

Pallivathukal et al. (2024) contributed to localised research by examining ChatGPT use among Malaysian healthcare students. A key strength of this study is its large sample size which involves over 400 participants and the detailed statistical analysis that links sociodemographic factors to ChatGPT usage patterns. The findings offer valuable insights into students' attitudes, frequency of use and ethical concerns related to AI. However, the study is confined to healthcare students, excluding perspectives from other disciplines where AI tools may be used differently. Additionally, the study focuses solely on ChatGPT use and does not consider other widely used AI tools. This may limit the generalisability of the findings in providing a comprehensive understanding of students' use of AI tools in academic contexts.

In summary, previous studies reveal several important gaps that the present study seeks to address. Firstly, there is a limited focus on English students. Most existing studies either focus on students across various disciplines (Firat, 2023; Ngo, 2023) or students in non-language fields such as healthcare (Pallivathukal et al., 2024). Few studies target students enrolled in English-related programmes. Secondly, there is insufficient analysis of multiple AI tools beyond ChatGPT. These studies tend to focus exclusively on ChatGPT without considering other AI tools like DeepSeek, Grammarly or QuillBot (Firat, 2023; Ngo, 2023; Pallivathukal et al., 2024). Thirdly, there is a lack of localised research within Malaysian universities. While AIEd has been widely studied in Western or Middle Eastern contexts, local studies in MHE, especially for English students, remain scarce. Finally, there is limited focus on written assignments. Although AI tools are often used in writing, very few studies explore

their role in students' written assignments. By addressing these gaps and applying the integrated framework, this study contributes to a more focused understanding of UTAR English students' perceptions of AI tools usage in written assignments.

CHAPTER 3 METHODOLOGY

3.1 Research Design

This study adopted a quantitative research design to explore the perceptions of UTAR English students towards the use of AI tools in their written assignments. In this study, data were collected using questionnaires. The collected data were then analysed using descriptive statistics to identify the trends in the Malaysian educational context.

3.2 Research Instrument

In this study, questionnaires were used to collect the data for analysis. The questionnaire was adopted and adapted from different researchers which are Ngo (2023), Valova et al. (2024), and Vo and Nguyen (2024). It included close-ended questions such as yes-or-no questions, multiple-choice questions and items measured using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

A screening question was included at the beginning of the questionnaire to determine whether participants had experience using AI tools in their studies or assignments. Only participants who answered “Yes” proceeded to the remaining sections.

The questionnaire consisted of three main sections. Section A included three items on demographic information. Section B included three items on participants’ use of AI tools. Section C consisted of 20 Likert-scale items. These items were divided into five categories that measured students’ perceptions: Perceived Usefulness and Ease of Use, Positive Impacts, Negative Impacts, Behavioural Intention and Evaluate Effectiveness. Screenshots of the full questionnaire are provided in Appendix A.

3.3 Scope of the Study

The research was conducted at Universiti Tunku Abdul Rahman (UTAR). The participants involved in this study were students enrolled in the Bachelor of Arts (Honours) English Education (ED) and Bachelor of Arts (Honours) English Language (EL) programmes.

3.4 Population and sample of the study

The population for this study consisted of all students enrolled in the ED and EL programmes in UTAR. A sample was drawn using a non-probability sampling method, specifically purposive sampling. The sample included only English students who had used AI tools in their written assignments or were familiar with AI tools. The sample size was determined based on the number of students in both ED and EL programmes and the availability of participants. A total of 80 respondents participated in the study.

3.5 Data Collection

The quantitative data were collected through online questionnaires. The questionnaires were created using Google Forms and distributed to participants via Microsoft Teams.

3.6 Data Analysis

The quantitative data collected were analysed using descriptive statistics. This allowed the researcher to summarise the data through measures such as frequencies, percentages and mean scores. Thus, this study offered a comprehensive understanding of the students' perceptions and the perceived impact of AI tools in their written assignments.

3.6.1 Mean Score Interpretation Likert-Scale Items

To analyse the responses collected through the 5-point Likert scale, a mean score (M) was calculated for each statement. The interpretation of each mean followed the true scale limits proposed by Lindner and Lindner (2024). These limits defined the boundaries of each response category (see Table 3.1). They also ensured an accurate interpretation of students' perceptions.

Mean Score Range	Interpretation Category
4.51 – 5.00	Strongly Agree
3.51 – 4.50	Agree
2.51 – 3.50	Neither Agree nor Disagree
1.51 – 2.50	Disagree
1.00 – 1.50	Strongly Disagree

Table 3.1 Interpretation categories for 5-point Likert scale mean scores

Each calculated mean was compared to the ranges shown in Table 3.1. This is to determine the level of agreement for each statement. For instance, a mean score of 4.2 fell under the "Agree" category, indicating that respondents generally agreed with the statement, but not strongly. This approach ensured that the analysis of the Likert-scale data is systematic and based on established interpretation limits. It also provides a clear and accurate understanding of respondents' attitudes.

CHAPTER 4 FINDINGS AND ANALYSIS

In this chapter, the findings are analysed based on the data collected from 80 participants. The results are divided into three sections (Section A, Section B and Section C). Section A mainly describes about the demographic information of all the 80 participants involved. Section B then examines the use of AI tools including the types of AI tools used, the frequency and the purposes of using AI tools. Last but not least, the participants' perceptions towards AI tools are discussed in Section C. In each section, descriptive statistics is used to yield detailed analysis of the data.

4.1 Findings (Section A)

4.1.1 Screening Question

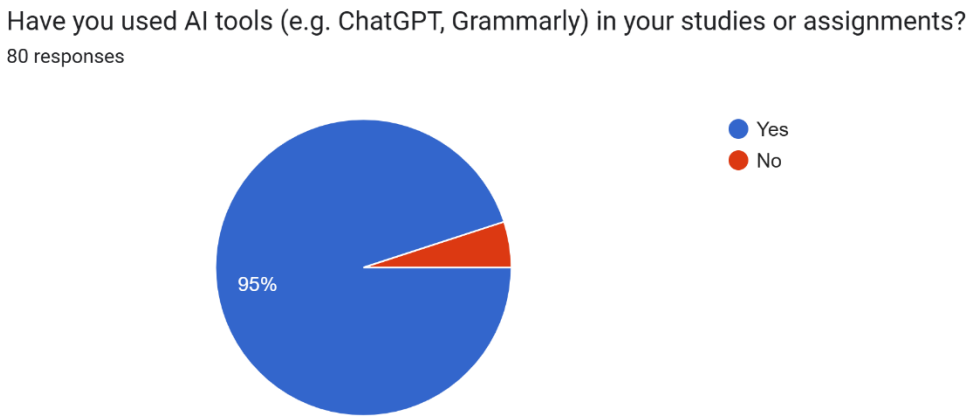

Figure 4.1 Screening question of participants

Before participants proceeded to answer the questionnaire, a screening question was asked. Figure 4.1 shows that 80 respondents participated in this study. However, four respondents said that they did not use AI tools in their studies or assignments. These four respondents were

excluded from further analysis. As a result, there are only 76 valid responses in the following discussion.

4.1.2 Gender Distribution

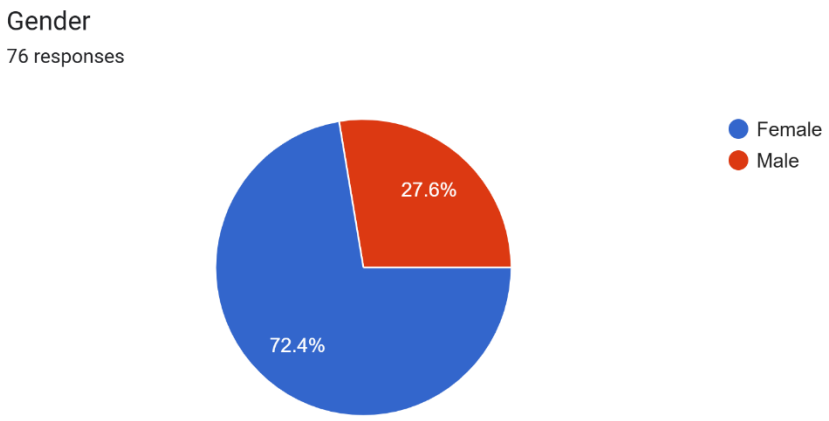

Figure 4.2 Distribution of respondents by gender

The gender distribution of respondents is shown in Figure 4.2. There were 21 males (27.6%) and 55 females (72.4%) out of a total of 76 respondents. This indicates that female students made up a larger proportion of respondents compared to male students.

4.1.3 Programme of Study

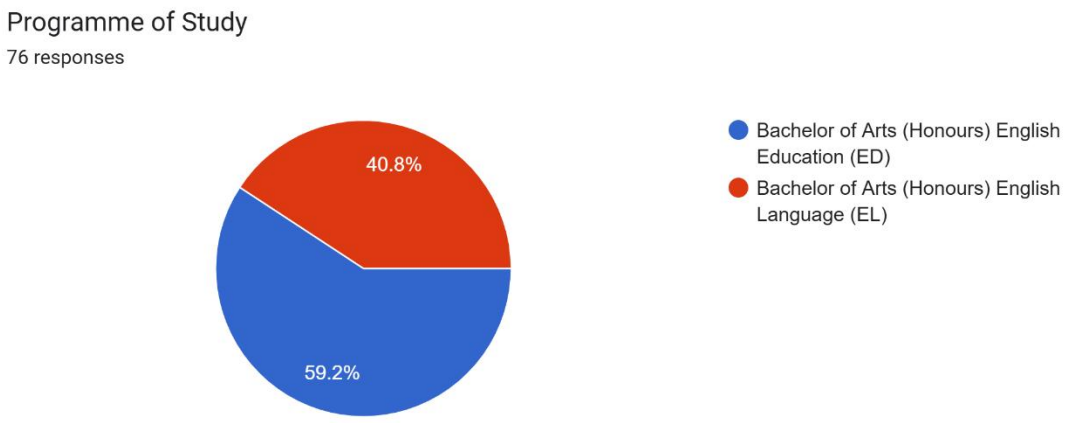

Figure 4.3 Distribution of respondents by programme of study

Figure 4.3 shows the distribution of participants by study programme. The findings demonstrate that the majority of respondents, 45 students (59.2%), were enrolled in the English Education programme. Meanwhile, the other 31 students (40.8%) were from the English Language programme. This reflects a slightly higher percentage of students from the English Education programme in the sample.

4.1.4 Year of Study

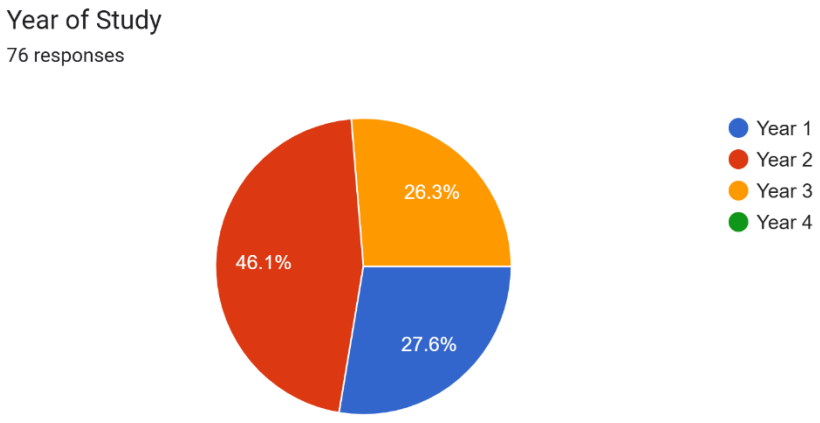

Figure 4.4 Distribution of respondents by year of study

As illustrated in Figure 4.4, the majority of participants were Year 2 students, comprising 35 respondents (46.1%). This was followed by Year 1 students with 21 respondents (27.6%), and Year 3 students with 20 respondents (26.3%). This distribution suggests that the sample is slightly more concentrated among students in their second year of study.

4.2 Findings (Section B)

4.2.1 AI Tools Used

AI Tools	Frequency	Percentage of Responses (n = 174)	Percentage of Respondents (n = 76)
ChatGPT	70	40.2%	92.1%
DeepSeek	16	9.2%	21.1%
Grammarly	33	19.0%	43.4%
QuillBot	43	24.7%	56.6%
Microsoft Copilot	4	2.3%	5.3%
Google Gemini	4	2.3%	5.3%
ChatPDF	2	1.2%	2.6%
Claude	2	1.2%	2.6%

Table 4.1 AI tools used by respondents in their written assignments

Since this was a multiple-choice question, participants were allowed to select more than one AI tool. Therefore, the total number of responses (n = 174) exceeds the total number of respondents (n = 76). The data includes frequency counts, percentage of responses and percentage of respondents to provide a clearer understanding of usage patterns (see Table 4.1).

The results show that ChatGPT was the most widely used AI tool. It accounted for 40.2% of all responses. 92.1% of the respondents used it. This means that almost all students

relied on ChatGPT to help them complete their assignments. Obviously, ChatGPT plays an important role in students' writing tasks.

Furthermore, QuillBot was the second most used AI tool. It contributed 24.7% of responses. 56.6% of the respondents used it. This was followed by Grammarly. 43.4% of the respondents used it. This accounted for 19.0% of responses. These results show that students preferred AI tools related to writing. They used these tools particularly to paraphrase, edit and proofread.

In contrast, other AI tools were used much less frequently. DeepSeek was used by 21.1% of the respondents. Microsoft Copilot and Google Gemini each have 5.3% of the respondents. Meanwhile, 2.6% of respondents used either ChatPDF or Claude. Students did not seem to enjoy these tools as much as others. They might be unfamiliar with these AI tools or consider them less useful than others.

Overall, the findings indicate that most students preferred using AI writing tools that are popular. They mostly used them to come up with ideas, modify the content and better their language. This preference reflects the need of students in academic writing.

4.2.2 Frequency of Using AI Tools

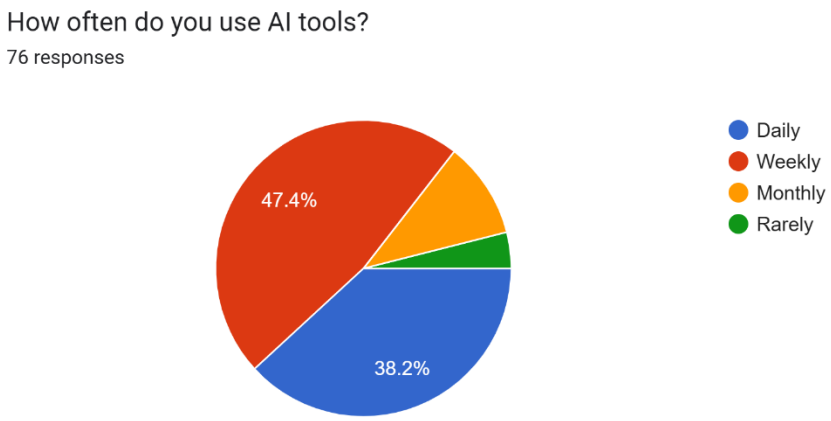

Figure 4.5 Frequency of AI tool usage among respondents

Figure 4.5 shows how often respondents used AI tools in their studies or assignments. Most students said that they use AI tools weekly. A total of 36 respondents (47.4%) chose this option. This reflects that about half of the students used AI tools regularly, but not every day. Meanwhile, 29 respondents (38.2%) stated that they use AI tools daily, indicating that more than one-third rely on AI tools for their everyday academic tasks. However, only a small proportion of respondents used AI tools less frequently, with 8 respondents (10.5%) using them monthly and 3 respondents (3.9%) rarely using them. In general, AI tool usage is highly integrated into students' academic activity. This shows that the growing dependence on AI tools among university students.

4.2.3 Purposes of Using AI Tools

Purposes	Frequency	Percentage of Responses (n = 257)	Percentage of Respondents (n = 76)
Search for information	56	21.8%	73.7%

Generate ideas	55	21.4%	72.4%
Draft writing	41	16.0%	53.9%
Proofread grammar and vocabulary	41	16.0%	53.9%
Summarise texts	27	10.5%	35.5%
Paraphrase content	31	12.1%	40.8%
Complete full assignment	6	2.3%	7.9%

Table 4.2 Purposes of using AI tools among respondents

Following the same calculation method used in Table 4.1, Table 4.2 presents the purposes for which students used AI tools in their written assignments.

According to Table 4.2, the most common purpose was searching for information, which accounted for 21.8% of responses and was selected by 73.7% of respondents. This shows that many students depend on AI to gather relevant content and background knowledge for their writing tasks. Idea generation was also common. It contributed 21.4% of responses. It was selected by 72.4% of respondents. This suggests that AI tools can help students brainstorm before writing.

In addition, more than half of the respondents used AI tools to draft writing. A total of 53.9% of respondents selected this purpose. Similarly, the same proportion (53.9%) used AI tools to proofread grammar and vocabulary. These results indicate that students use AI in order to improve clarity, accuracy and quality of their writing.

Furthermore, a moderate usage was observed for paraphrasing content and summarising texts. Paraphrasing was selected by 40.8% of respondents. Meanwhile, 35.5% of

respondents opted for summarise. This means that students use AI to modify or shorten texts, but not as often as they use it to generate ideas or draft.

On the other hand, only a few respondents used AI tools to complete full assignments. 7.9% of the respondents selected this purpose. This demonstrates that although students rely on AI for academic support, they do not fully depend on it to complete their assignments.

Overall, Table 4.2 shows that students mainly use AI tools to assist specific stages of the writing process. They use AI mostly for searching for information, generating ideas, drafting and proofreading. This pattern reflects that students' preference for AI functions that enhance their writing rather than replace their writing efforts.

4.3 Findings (Section C)

4.3.1 Perceived Usefulness and Ease of Use

Items	Mean
AI tools are easy to use	4.36
AI tools are useful for completing my academic work	4.14
AI tools help improve my writing skills	3.78
I have no difficulty in using AI tools	4.01
AI tools make academic writing easier for me	4.07
General mean	4.07

Table 4.3 Respondents' perceptions of the usefulness and ease of use of AI tools

As shown in Table 4.3, the mean scores for all items range from 3.78 to 4.36. These scores fall under the "Agree" category based on the interpretation limits (see Table 3.1). This shows that students generally think AI tools are useful and easy to use.

The item "AI tools are easy to use" got the highest mean score (M = 4.36). So, most students agree that AI tools are simple and user-friendly. Furthermore, the mean score for "AI

tools are useful for completing my academic work" is also high (M = 4.14). This indicates that students find that AI tools are very effective in helping them to finish their assignments.

For the item "AI tools help improve my writing skills", the mean score is 3.78. In comparison, this score is lower than other scores, but it still categorised as "Agree". Although students do not strongly agree, they believe that AI tools can help them write better.

In addition, the item "I have no difficulty in using AI tools" has a mean of 4.01. Meanwhile, the mean score for "AI tools make academic writing easier for me" was similar (M = 4.07). These results suggest that students have no problems and feel comfortable using AI tools. Plus, they think AI is beneficial to their writing process.

The general mean score for this section is 4.07. This score falls within the "Agree" range. This shows that students have positive perceptions of the usefulness and ease of use of AI tools.

4.3.2 Perceived Positive Impacts

Items	Mean
AI tools save time and help me complete assignment faster	3.93
AI tools improve the quality of my writing	3.86
AI tools enhance my grammar and vocabulary	3.70
AI tools encourage me to practice writing more frequently	3.39
General mean	3.72

Table 4.4 Respondents' perceptions of the positive impacts of AI tools

Table 4.4 shows students' perceptions of the positive impacts of AI tools on their writing. The mean scores range from 3.39 to 3.93. Most items fall under the "Agree" category. Only one item falls under the "Neither Agree nor Disagree" category.

The highest mean score is for the item "AI tools save time and help me complete assignments faster" (M = 3.93). Obviously, most students agree that AI tools help increase their productivity. The item "AI tools improve the quality of my writing" received a mean of 3.86. As a result, students seem to think that AI tools can produce written work in terms of better quality.

The item "AI tools enhance my grammar and vocabulary" has a mean of 3.70. This shows moderate agreement. This reflects that students find AI tools helpful in improving language, but not strongly.

However, the item "AI tools encourage me to practice writing more frequently" got the lowest mean score (M = 3.39). This score is in the "Neither Agree nor Disagree" range. This suggests that students have no idea whether AI tools make them want to write more.

This section has a general mean score of 3.72. This score belongs to the "Agree" category. This result shows that students generally recognise the benefits of AI tools. They believe that AI tools can save time and improve the quality of writing.

4.3.3 Perceived Negative Impacts

Items	Mean
AI tools sometimes provide inaccurate or unreliable information	3.96
Over-reliance on AI tools reduces my ability to think critically	3.97
Using AI tools without verifying information can lead to academic dishonesty	4.13

AI tools make me overly dependent and lazy in writing	3.58
General mean	3.91

Table 4.5 Respondents' perceptions of the negative impacts of AI tools

According to Table 4.5, the mean scores range from 3.58 to 4.13. Most items fall in the "Agree" category. This shows that students are aware of the negative impacts. In other words, they know that AI tools might not always be the best choice for academic writing.

With a mean of 4.13, the item "Using AI tools without verifying information can lead to academic dishonesty" ranked first. It seems that ethical issues are now the primary concern for students when using AI tools.

The mean score for "Over-reliance on AI tools reduces my ability to think critically" was 3.97. Similarly, the item "AI tools sometimes provide inaccurate or unreliable information" received a mean score of 3.96. These findings show that students are well aware of the limitations of AI tools. They understand that their writing may be negatively affected by them.

Additionally, the lowest-ranked item is "AI tools make me overly dependent and lazy in writing" (M = 3.58). Nevertheless, it still falls under the "Agree" category. Students seem to be less concerned about laziness than other consequences.

For this section, a general mean score of 3.91 is recorded. An overall agreement is shown by this score. The results suggest that no matter what benefits students perceive, they understand the potential risks of AI tools.

4.3.4 Behavioural Intention

Items	Mean
I plan to continue using AI tools for future assignments	3.95
I feel more confident in my writing when using AI tools	3.51
I would recommend AI tools to my friends for their written assignments	3.62
I prefer using AI tools rather than solely relying on peers or lecturers for writing help	3.08
General mean	3.54

Table 4.6 Respondents' behavioural intention to use AI tools

Table 4.6 shows students' behavioural intention to use AI tools in their writing. The mean scores range from 3.08 to 3.95. Most items fall under the "Agree" category. One item is in the "Neither Agree nor Disagree" range.

The mean score for "I plan to continue using AI tools for future assignments" is the highest (M = 3.95). Most students are willing to keep using AI tools in their writing. The items "I feel more confident in my writing when using AI tools" (M = 3.51) and "I would recommend AI tools to my friends for their assignments" (M = 3.62) also fall in the "Agree" range. As a result, students believe that AI tools are useful for their writing tasks. At the same time, they would even encourage others to use them.

However, "I prefer using AI tools rather than solely relying on peers or lecturers for writing help" has the lowest mean score of 3.08. It is categorised as "Neither Agree nor Disagree". This clearly suggests that students still prefer help from human to AI tools. When they write, they thank their classmates and lecturers for their help.

Overall, the general mean for this section is 3.54. This score is in the "Agree" range. These results indicate that students are happy with the AI tools they have used. In the future, they hope to keep using them but do not want them to replace human guidance.

4.3.5 Perceived Effectiveness

Items	Mean
I am satisfied with the results of using AI tools in my assignments	3.51
AI tools help me meet the expectations and requirements of my assignments	3.70
AI tools contribute positively to my academic performance	3.66
General mean	3.62

Table 4.7 Respondents' perceived effectiveness of AI tools

As shown in Table 4.7, the mean scores are between 3.51 and 3.70. All the scores fall within the "Agree" range. In a sense, students believe that AI tools can help them with their coursework.

The highest-ranked item is "AI tools help me meet the expectations and requirements of my assignments" (M = 3.70). Most students agree that AI tools are effective in helping them to achieve the academic standards. Moreover, the mean score for item "AI tools contribute positively to my academic performance" was 3.66. This shows that students also think that they can do well academically by using AI tools.

In addition, the item "I am satisfied with the results of using AI tools in my assignments" got a mean of 3.51. This score is slightly lower than other scores. However, it still shows agreement. This suggests that students are generally satisfied with the outcomes of using AI tools.

This section received a general mean score of 3.62. This shows that students believe that AI tools are effective in helping them finish their assignments and perform well in their studies.

4.3.6 Overall Perceptions of Respondents Towards AI Tools

Items	N	Mean
Perceived Usefulness and Ease of Use	76	4.07
Perceived Positive Impacts	76	3.72
Perceived Negative Impacts	76	3.91
Behavioural Intention	76	3.54
Perceived Effectiveness	76	3.62
General mean	76	3.77

Table 4.8 Mean scores of respondents' general perceptions towards AI tools

Table 4.8 presents students' overall perceptions of AI tools in written assignments. The mean scores for all sections range from 3.54 to 4.07. All of the scores belong to the "Agree" category. The results show that students hold positive attitudes towards AI tools.

The mean score for Perceived Usefulness and Ease of Use is the highest (M = 4.07). This indicates that students think AI tools are easy to use and helpful. Furthermore, the second-highest score is for Perceived Negative Impacts (M = 3.91). This suggests that students are aware of risks such as over-reliance or inaccuracies.

The mean scores for Perceived Positive Impacts (M = 3.72), Perceived Effectiveness (M = 3.62) and Behavioural Intention (M = 3.54) also show agreement. Based on these findings, it is obvious that students perceive AI tools as beneficial and effective. Additionally, students also intend to continue using AI tools for their assignments in the future.

As a whole, the general mean score recorded is 3.77. This score belongs to the "Agree" category. While students recognise certain limitations, they still feel positively towards AI tools in writing.

CHAPTER 5 DISCUSSION AND CONCLUSION

In Chapter 5, the key findings of the study are discussed together with past studies. The perceptions of UTAR English students towards AI tools have been well explained and discussed. Furthermore, the findings are compared with previous research conducted in Malaysia and abroad to understand the similarities and differences. In the meantime, these findings are also used to answer the research questions and achieve the research objectives. The following discussion explains the impact of AI tools on English students' writing performance. In addition, this chapter highlights the implications of the study for students, educators and institutions. It then explains the limitations and gives recommendations for future research. Finally, this chapter summarises the study's contributions to the understanding of AI use in academic writing within Malaysian higher education.

5.1 Discussion of Key Findings

5.1.1 Use of AI Tools in Written Assignments

The findings show that ChatGPT is the most widely used AI tool among UTAR English students (92.1%). This echoes global trends in higher education. Many studies have shown that AI tools like ChatGPT are widely used in academic settings because of their accessibility and versatility (Firat, 2023; Sallam, 2023). Moreover, this high usage also supports earlier research which generative AI is becoming part of students' academic routines, especially for writing tasks (Khairuddin et al., 2024; Pallivathukal et al., 2024). One main reason for this trend is the function of generative AI. It can assist in brainstorming and drafting. As a result, this support reduces the cognitive load of students.

Besides, the findings also show high usage of QuillBot (56.6%) and Grammarly (43.4%). This trend is consistent with previous findings. Prior research shows that students

frequently use these tools for paraphrasing, proofreading and writing improvement (Hadiat et al., 2022; Latifah et al., 2024). Therefore, the results suggest that English students use AI tools strategically. They rely on these tools to make their writing clearer, more coherent and more accurate. These functions help to improve writing performance. Past studies have also highlighted this point (Aljuaid, 2024; Latifah et al., 2024).

5.1.2 Students' Perceptions Towards AI Tools

The findings indicate that UTAR English students generally hold positive perceptions towards the use of AI tools in written assignments. Since the general mean score is 3.77, it shows overall agreement among students. Furthermore, the highest mean score was observed in Perceived Usefulness and Ease of Use (M = 4.07). UTAR English students seem to believe that AI tools are very useful and easy to use. This consistent with Davis's (1989) TAM. He argued that both PU and PEOU significantly influence individual's technology acceptance. These results thus support his claim. Previous studies also found similar results. In Ngo's (2023) study, university students perceived ChatGPT as convenient and effective for academic tasks. Besides, Vo and Nguyen (2024) reported that PU and PEOU influenced Vietnamese students' attitudes towards ChatGPT in language learning.

5.1.3 Positive Impacts on Writing Performance

UTAR English students reported that AI tools have positive impacts on their writing performance (M = 3.72). They believe that these tools make writing faster and better. By using AI tools, students also think that their grammar and vocabulary can be improved. These findings are same as those found in earlier research. AI helps students in making their grammar

more accurate, thereby increasing the quality of writing. Moreover, AI tools can support personalised learning for students (Aljuaid, 2024; Latifah et al., 2024; Zhai et al., 2024).

However, a notable new insight is revealed by this study. UTAR English students are neutral on whether AI encourages more writing practice (M = 3.39). Although AI tools may enhance writing performance, students do not feel that their writing engagement or motivation is being boost. In addition, many previous studies focused on how AI enhances student learning (Firat, 2023; Ngo, 2023). None of them examines whether it makes them write more actively. Thus, future research in Malaysia may benefit from the new perspective of this study.

5.1.4 Awareness of Negative Impacts and Ethical Concerns

Despite the advantages, UTAR English students are aware of the disadvantages of AI tools. The high mean score for Perceived Negative Impacts (M = 3.91) proves this fact. In terms of academic writing, many students are concerned about issues related to AI use. Since academic dishonesty recorded the highest mean of 4.13, this is one of their major concerns. They understand that using AI tools in academic tasks may be risky. Furthermore, another concern is that over-reliance on AI will reduce critical thinking (M = 3.97). With a mean of 3.96, students also agree that AI tools might provide wrong or unreliable information.

Previous studies have also raised these concerns. A recent study found that educators are concerned that unregulated AI use may lead to plagiarism and academic misconduct (Selvanathan & Narayanan, 2024). Besides, students may rely more and more on AI tools (Ismail, 2024). Pallivathukal et al. (2024) noted that such reliance could hinder students' creativity and analytical skills. As a result, UTAR students share similar concerns, especially about academic integrity.

Interestingly, UTAR English students do not think that AI tools make them more dependent or lazy to write (M = 3.58). This is different from what Zhai et al. (2024) found. They reported a high level of dependence among students. Therefore, current study shows that English students might use AI in a responsible manner. This may due to their stronger writing background or better understanding of academic expectations.

5.1.5 Behavioural Intention to Use AI Tools

The findings show that students have moderate behavioural intention to use AI tools (M = 3.54). Furthermore, they show willingness to continue using AI tools for future assignments (M = 3.95). These results align with TAM which PU and PEOU influence users' intention (Davis, 1989). However, students were neutral about whether they prefer to rely on AI tools over peers or lecturers (M = 3.08). This result indicates that students do not think that AI tools can replace human help. Instead, they see them as tools to help them complete their writing tasks. This suggests that the help from peers and lecturers is still crucial in academic writing. This aspect has not been fully examined in prior studies. So, it contributes a new insight to the existing literature.

5.1.6 Perceived Effectiveness of AI Tools

UTAR English students generally believe that AI tools effectively help them perform academic tasks better (M = 3.62). This corresponds to the fourth step of the IDEE framework. This 'Evaluate the Effectiveness' step encourages students to think about whether AI tools help them achieve their learning goal (Su & Yang, 2023). Moreover, Ngo (2023) and Vo and Nguyen (2024) are the two examples of earlier studies that focused on acceptance and usage patterns. Thus, this study demonstrates how students evaluate the effectiveness of AI tools.

They prioritise AI's ability to help them in completing assignments and achieving academic success. The results not only add theoretical value, but are also meaningful in the context of Malaysian higher education.

5.1.7 How the Findings Answer the Research Questions

RQ1: What are the perceptions of UTAR English students towards the use of AI tools in their written assignments?

UTAR English students generally have a positive attitude towards AI tools. In their opinion, these tools are both useful and easy to use. Apart from that, they believe that AI tools can effectively help them to complete various writing tasks. Based on the findings, idea generation and draft content are the most common purposes for students to use AI. Sometimes, they also use it to correct their grammar and language when writing. In addition, students' overall writing performance has been effectively improved by using AI tools. Nevertheless, students do recognise a few drawbacks of these tools. As they reported, their concerns include misinformation, overdependence and ethical issues. These findings show that UTAR English students are aware of the advantages and disadvantages of AI tools in writing tasks.

RQ2: What are the impacts of AI tools on UTAR English students' writing performance?

The results show that AI tools affect writing performance both positively and negatively. On the positive side, UTAR English students reported an improvement in the quality of their written work. By using AI tools, they noticed that their language use is clearer and their grammar accuracy is higher. Furthermore, students think that AI makes their life easier and helps them to finish their assignments faster. These results show that AI tools not only assist the writing process, but also help students to achieve better writing outcomes.

On the other hand, some negative impacts are highlighted by UTAR English students. As mentioned earlier, they are worried that AI tools may hinder their ability to think critically. Meanwhile, the accuracy of the content generated by AI is one of their major concerns when using AI tools. Some students also pointed out that unverified AI output might lead to academic dishonesty. Through these results, the impact of AI tools on UTAR English students' writing performance can be better understood.

5.2 Implications of the Study

Based on the above discussion, this study has theoretical and practical implications for AI use in academic writing. Theoretically, TAM is supported by the study. The findings indicate that students' AI acceptance is influenced by PU and PEOU. UTAR English students are more likely to use AI tools that they find beneficial and user-friendly, such as ChatGPT and QuillBot. By integrating the IDEE framework's fourth step, this study further extends TAM. This is a good example of how students think about the outcomes before continuing to use AI tools. It seems that UTAR English students do not simply use AI for convenience, but because they believe it can improve their writing quality.

Furthermore, the study covers different AI tools with an emphasis on English majors. It also examines the impact of AI tools on students' writing performance. These areas are areas that have not been thoroughly explored in previous studies. As a result, this study fills the gaps in past research by focusing on English students, examining various AI tools and their impact.

Practically, educators and institutions may benefit from these findings. For educators, it is very important to include AI literacy into the writing courses, so that students can learn how to critically evaluate AI-generated content. Plus, lecturers may encourage students' creativity and originality by assigning specific writing tasks. In order to complete these tasks,

students need to apply what they have learned instead of relying on AI tools. For institution, the findings show that it is crucial to have clear guidelines for ethical and responsible AI use. Universities should organise workshops or related activities to educate students on the proper use of AI. Digital literacy modules can also be included in the writing classes to help students to understand how to use AI ethically in academic work. Overall, educators and institutions must work together to ensure that AI tools support learning without compromising academic standards.

5.3 Limitations of the Study

Although this study contributes to the existing literature, there are still some limitations. First of all, the generalisability of the findings is limited as the sample only included UTAR students from English programmes. These results cannot be applied to students from other faculties or universities because they may use AI tools in different ways. So, their perceptions may be different from those of English students. Secondly, the bias in the responses may occur because the study relied solely on quantitative self-reported data. This bias might ignore students' real experiences and make it difficult to explain and understand how students use AI tools. Last but not least, this study focused on how students perceive their writing performance rather than analysing their actual writing outputs. Therefore, the findings cannot prove that AI tools directly affect the quality of students' writing. In short, these limitations highlight the importance of future research. Future studies should include more diverse participants and methods to provide richer insights into the field of AIEd.

5.4 Recommendations for Future Research

Given the aforementioned limitations, several recommendations can be made. First and foremost, future studies should include larger sample sizes such as students from other faculties or universities. By doing so, researchers can observe the differences in AI usage across discipline and have a more comprehensive understanding of how students in different academic settings use AI tools. Furthermore, future research should adopt a mixed-methods research design including interviews or focus groups. These methods help to understand students' thoughts, motivations and challenges when using AI tools, and yield insights that questionnaire might overlook. Additionally, future studies can analyse students' actual writing before and after using AI to measure how writing quality, coherence or accuracy changes over time. In this way, it provides researchers with more powerful evidence of the impact of AI on students' writing performance. Finally, future research should explore instructors' perceptions because they would give useful advice based on their teaching experience. It is important to explore their perceptions in order to develop effective pedagogical strategies and institutional policies for AI use.

5.5 Conclusion

UTAR English students generally have positive perceptions towards the use of AI tools in written assignments. In their minds, AI tools are useful, practical, functional and easy to use. They think these tools can help them generate new ideas, correct grammatical errors and properly construct the writing sentences. At the same time, students also believe that AI tools can make them more productive. In fact, they usually use AI to draft, revise and proofread their academic tasks. The findings show that AI tools have been embedded in UTAR English students' writing. Therefore, they consider AI tools to be beneficial.

However, the study also found that UTAR English students are aware of the disadvantages of using AI tools in written assignments. They express concerns about inaccurate information, reduced critical thinking and academic dishonesty. These concerns show that students recognise the advantages of AI tools but are also aware of the necessity for responsible use. This is important because it ensures that students treat AI tools as support rather than relying on them entirely. This also prevents AI from replacing human creativity and maintains academic integrity.

In addition, the study successfully achieved its research objectives, which are to explore UTAR English students' perceptions towards AI tools and examine their impact on writing performance. Meanwhile, this study adds new insights to the existing literature by addressing the gaps in previous research. It focuses on English students who rely heavily on writing but received little attention in Malaysian studies. Multiple AI tools are included in the study to better understand AI use in writing. It further emphasises writing performance which an area that previous studies have not explored in detail. Therefore, these aspects strengthen the significance of the study and contribute to a better understanding of how Malaysian university students use AI.

Last but not least, the results highlight the importance of guiding students to use AI in a proper way. They also suggest that universities should set clear guidelines for ethical AI use which help students use AI tools without compromising academic standards. Overall, this study has meaningful implications for researchers, educators and policymakers. It also lays the foundation for future studies in language education.

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Appendix

Appendix A: Questionnaire

USE OF AI TOOLS IN WRITTEN ASSIGNMENTS: ENGLISH STUDENTS' PERCEPTIONS

Dear Utarians,

I'm Teoh Yi Jun, a Year 3 student from the Bachelor of Arts (Honours) English Language in Universiti Tunku Abdul Rahman (UTAR), Kampar.

As part of my Final Year Project, I'm conducting a study to explore the perceptions and impacts of AI tools on written assignments among UTAR English students.

This questionnaire consists of **three sections** and will take approximately **5 to 10 minutes** to complete:

- **Section A: Demographic Information**
- **Section B: Use of AI Tools**
- **Section C: Perceptions Towards AI Tools**

Your participation is greatly appreciated as it will offer valuable insights into how English students perceive and use AI tools in their studies, especially in written assignments. Please be assured that the information you provided will be kept strictly confidential and used solely for academic research purposes.

Inclusion Criteria:
√ Students enrolled in English Education (ED) and English Language (EL)

Confidentiality Statement:
All data collected will remain confidential and will be handled in accordance with the **Personal Data Protection Act (PDPA)**.

If you have any questions or need further information, feel free to reach out to me via **Microsoft Teams** at **yijun02@1utar.my**.

Thank you very much for your time and support!

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* Indicates required question

PERSONAL DATA PROTECTION NOTICE
In accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is committed to safeguarding your personal data and requires your consent in relation to collection, recording, storage, usage and retention of such data.

1. Under Section 4 of the PDPA, personal data refers to information that identifies or can be used to identify an individual, whether directly or indirectly. This includes but is not limited to:

- Name
- Identification Card or Passport Number

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1. Under Section 4 of the PDPA, personal data refers to information that identifies or can be used to identify an individual, whether directly or indirectly. This includes but is not limited to:

- Name
- Identification Card or Passport Number
- Place and Date of Birth
- Address
- Education and Employment History
- Medical Records, Blood Type
- Race, Religion
- Photographs
- Sensitive Personal Data (e.g., political or religious beliefs, health conditions, offences)
- Research-related information linked to identifiable individuals

2. Your personal data may be used for purposes that include but are not limited to the following:

- For assessment of any application to UTAR
- For processing any benefits and services
- For communication purposes
- For advertorial and news
- For general administration and record purposes
- For enhancing the value of education
- For educational and related purposes consequential to UTAR
- For replying any responds to complaints and enquiries
- For the purpose of our corporate governance
- For the purposes of conducting research/collaboration

3. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

4. In line with the Retention Principle (Section 10 of PDPA), your personal information will be only retained as long as necessary for the fulfillment of its purposes. Thereafter, it will be securely destroyed and/or deleted in accordance with UTAR's data retention policies.

5. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

6. According to the Access Principle (Section 12), you have the right to:

- Request access to your personal data
- Request correction if your data is inaccurate, incomplete or outdated

Consent:

6. By submitting or providing your personal data to UTAR, you consent to its processing as

- For processing any benefits and services
- For communication purposes
- For advertorial and news
- For general administration and record purposes
- For enhancing the value of education
- For educational and related purposes consequential to UTAR
- For replying any responds to complaints and enquiries
- For the purpose of our corporate governance
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- Request correction if your data is inaccurate, incomplete or outdated

Consent:
6. By submitting or providing your personal data to UTAR, you consent to its processing as outlined in this notice.

7. If you choose to withdraw your consent under Section 38 of the Act, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

8. For inquiries or to exercise your rights, you may contact me at **yijun02@1utar.my**.

Acknowledgement of Notice *

I have read and understand the above Personal Data Protection Notice, and I _____.

◯ Agree to participate

◯ Disagree to participate and will quit this survey immediately

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USE OF AI TOOLS IN WRITTEN ASSIGNMENTS: ENGLISH STUDENTS' PERCEPTIONS

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Screening Question

Have you used AI tools (e.g. ChatGPT, Grammarly) in your studies or assignments? *

- ◯ Yes
- ◯ No

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USE OF AI TOOLS IN WRITTEN ASSIGNMENTS: ENGLISH STUDENTS' PERCEPTIONS

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Section A: Demographic Information

Gender *

- ◯ Female
- ◯ Male

Programme of Study *

- ◯ Bachelor of Arts (Honours) English Education (ED)
- ◯ Bachelor of Arts (Honours) English Language (EL)

Year of Study *

- ◯ Year 1
- ◯ Year 2
- ◯ Year 3
- ◯ Year 4

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Section B: Use of AI Tools

Which AI tools have you used in your studies or assignments? *

- [ ] ChatGPT
- [ ] DeepSeek
- [ ] Grammarly
- [ ] QuillBot
- [ ] Other: _____

How often do you use AI tools? *

- ◯ Daily
- ◯ Weekly
- ◯ Monthly
- ◯ Rarely

What tasks do you mainly use AI tools for? *

- [ ] Search for information
- [ ] Generate ideas
- [ ] Draft writing
- [ ] Proofread grammar and vocabulary
- [ ] Summarise texts
- [ ] Paraphrase content
- [ ] Complete full assignments
- [ ] Other: _____

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Section C: Perceptions Towards AI Tools

5-point Likert scale
(1 = Strongly Disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree)

Perceived Usefulness & Ease of Use

AI tools are easy to use. *

1	2	3	4	5
○	○	○	○	○

AI tools are useful for completing my academic work. *

1	2	3	4	5
○	○	○	○	○

AI tools help improve my writing skills. *

1	2	3	4	5
○	○	○	○	○

I have no difficulty in using AI tools. *

1	2	3	4	5
○	○	○	○	○

AI tools make academic writing easier for me. *

1	2	3	4	5
○	○	○	○	○

USE OF AI TOOLS IN WRITTEN ASSIGNMENTS: ENGLISH STUDENTS' PERCEPTIONS

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Positive Impacts

AI tools save time and help me complete assignments faster. *

1 2 3 4 5

AI tools improve the quality of my writing. *

1 2 3 4 5

AI tools enhance my grammar and vocabulary *

1 2 3 4 5

AI tools encourage me to practice writing more frequently. *

1 2 3 4 5

Negative Impacts

AI tools sometimes provide inaccurate or unreliable information. *

AI tools encourage me to practice writing more frequently. *

1	2	3	4	5
○	○	○	○	○

Negative Impacts

AI tools sometimes provide inaccurate or unreliable information. *

1	2	3	4	5
○	○	○	○	○

Over-reliance on AI tools reduces my ability to think critically. *

1	2	3	4	5
○	○	○	○	○

Using AI tools without verifying information can lead to academic dishonesty. *

1	2	3	4	5
○	○	○	○	○

AI tools make me overly dependent and lazy in writing. *

1	2	3	4	5
○	○	○	○	○

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USE OF AI TOOLS IN WRITTEN ASSIGNMENTS: ENGLISH STUDENTS' PERCEPTIONS

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Behavioural Intention

I plan to continue using AI tools for future assignments. *

1	2	3	4	5
○	○	○	○	○

I feel more confident in my writing when using AI tools. *

1	2	3	4	5
○	○	○	○	○

I would recommend AI tools to my friends for their written assignments. *

1	2	3	4	5
○	○	○	○	○

I prefer using AI tools rather than solely relying on peers or lecturers for writing help. *

1	2	3	4	5
○	○	○	○	○

Evaluate Effectiveness

I am satisfied with the results of using AI tools in my assignments. *

I would recommend AI tools to my friends for their written assignments. *

1	2	3	4	5
○	○	○	○	◉

I prefer using AI tools rather than solely relying on peers or lecturers for writing help. *

1	2	3	4	5
○	○	○	○	◉

Evaluate Effectiveness

I am satisfied with the results of using AI tools in my assignments. *

1	2	3	4	5
○	○	○	○	○

AI tools help me meet the expectations and requirements of my assignments. *

1	2	3	4	5
○	○	○	○	○

AI tools contribute positively to my academic performance *

1	2	3	4	5
○	○	○	○	○

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